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SCIENTOMETRIC ANALYSIS OF ONION (ALLIUM CEPA L) DURING 1980-2019: A STUDY BASED ON CAB DIRECT

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ABSTRACT

Study of onion (Allium cepa L) for the period 1980-2019, was obtained from the CAB Direct Online database via Scientometric review. The analysis found that 2067 papers were published during the period1980 – 2019, and 218 papers were the largest number in 2017.Asian Journal of Horticulture is the most competitive ranking journal with 62researcherspublishing their research papers in the most prominent 10 journals (2.73%) India is the top country in onion research with almost 535 papers (23.5%) contributing to global onion research, with states such as Maharashtra, Karnataka, Uttar Pradesh, Tamil Nadu, West Bengal, Andhra Pradesh, Madhya Pradesh, Gujarat, Punjab, Rajasthan, Odisha, Haryana, Bihar, Chhattisgarh, Himachal Pradesh, Jammu and Kashmir and Kerala contributing Indian publications output followed by Romania (3.52%).

KEYWORDS: *Scientometric, Onion, CAB Direct, Relative Growth Rate, Doubling Time*

INTRODUCTION

Onions have been identified in different ways as having originated in Iran, the subcontinent of Western India and Central Asia. Traces of onions recovered from settlements in China during the Bronze Age suggest that onions were used as far back as 5000 BCE, not only for their flavor but also for the durability of the bulb in storage and transportation. Onions (Allium cepa L) are one of the most important condiments,which are widely used in every household throughout the year. The green leaves and immature and mature bulbs are eaten raw or used in vegetable preparation. Onions are used in soups and sauces as well as in food seasoning. One can pickle the smaller bulbs in vinegar. Recent research has suggested that onions may play a dietary role in the prevention of heat and other ailments. Onion bulbs are rich in carbohydrates, Calcium and Phosphorous. The pungency in onion is caused by a volatile oil called allyl-propyl disulphide. Onion is an important crop with world production of about 25 million tons in all continents. Pakistan has experienced a progressive increase in the area of onion production. The region grew to 84.3 thousand hectares in 1998-99, production was 1138.2 thousand tons and yield was 13.5 tonnes/ha.

OBJECTIVES OF THE STUDY

This study's main objective is to review, the results of the analysis in Onion review, as reflected in the output of its publications in the CAB Direct Online database between 1980 – 2019. The analysis focuses on the following objectives, in the exacting:

- CAB Direct Online database supported for the period 1980-2019 in order to examine the overall range of publications output on Onion seeds research analysis.
- Identify publications forms.
- Studying thetop10 journals publishing more research papers on analysis of Onion.
- Identify the top10 authors in Onion analysis field.
- To identify the highest rank-wise countries in the analysis of Onion.
- Identify the language distribution of an analysis of Onion.

METHODOLOGY

The CAB Direct Online database was used for the 40 years (1980 – 2019) to retrieve the data by looking inside the title area at the keyword 'Onion' CAB Direct Online database collects the entire array of records at 2269.

RESULTS AND ANALYSIS

The data obtained from the CAB Direct Online database on the Onion research was analyzed and various types of statistical tools were presented, such as tables used to present the results.

Growth Rate and Doubling Time in Onion Research Output

A study of the growth rate of Onion seeds' research performance is an essential factor in the analysis of field research and production.Table-1 shows no publications on the relative growth rate in the Onion or the study production over those years (1983; 1985-1987; 1991-1992; 1994-1995 and 1998). Quotations are extracted from the Relative Growth Rate and Doubling Time and are defined in table-1. The relative publishing growth rate of the publication can be found to have decreased and increased, but it was constant from the rate of 0.04 in 2000 to 0.47 in 2002 i.e. the growth frequency was varied. The average relative growth over the 40 years period (1980-2019) showed a growth rate of 0.24 while the corresponding doubling time for a single year gradually increased from 1.00 to 3.15 in (1981-1988); from 1.98 to 3.46 (2007-2011); and from 3.30 to 6.93 in (2012-2016). The 40 year (1984-2019) mean doubling time was only 3.19 which increased in the subsequent doubling time.

Table 1: Relative Growth Rate [R(c)] and Doubling Time [Dt(C)] of Overall Research Output

S. No.	Year	No. of Publications[x]	Cumulative No. of Output [y]	$\text{Log}_e 1^{y-x}$	$\text{Log}_e 2^{y-x}$	[R(c)]	Mean [R(c)]	[Dt(C)]	Mean [Dt(C)]
1.	1980	1	1	0	0	0		0	
2.	1981	1	2	0	0.69	0.69		1.00	
3.	1982	1	3	0.69	1.09	0.4		1.73	
4.	1984	1	4	1.09	1.38	0.29		2.39	
5.	1988	1	5	1.38	1.60	0.22		3.15	
6.	1989	2	7	1.60	1.94	0.34		2.04	
7.	1990	2	9	1.94	2.19	0.25		2.77	
8.	1993	2	11	2.19	2.39	0.2		3.46	
9.	1996	4	15	2.39	2.70	0.31		2.23	
10	1997	5	20	2.70	2.99	0.29		2.39	
11.	1999	2	22	2.99	3.09	0.1		6.93	
12.	2000	1	23	3.09	3.13	0.04		1.73	
13.	2001	4	27	3.13	3.29	0.16		4.33	
14.	2002	16	43	3.29	3.76	0.47		1.47	

15.	2003	7	50	3.76	3.91	0.15	0.24	4.62	3.19
16.	2004	18	68	3.91	4.21	0.3		2.31	
17.	2005	76	144	4.21	4.96	0.75		9.27	
18.	2006	59	203	4.96	5.31	0.35		1.98	
19.	2007	87	290	5.31	5.66	0.35		1.98	
20.	2008	109	399	5.66	5.98	0.32		2.16	
21.	2009	138	537	5.98	6.28	0.3		2.31	
22.	2010	152	689	6.28	6.53	0.25		2.77	
23.	2011	149	838	6.53	6.73	0.2		3.46	
24.	2012	201	1039	6.73	6.94	0.21		3.30	
25.	2013	194	1233	6.94	7.11	0.17		4.08	
26.	2014	204	1437	7.11	7.27	0.16		4.33	
27.	2015	211	1648	7.27	7.40	0.13		5.33	
28.	2016	178	1826	7.40	7.50	0.1		6.93	
29.	2017	218	2044	7.50	7.62	0.12		5.77	
30.	2018	139	2183	7.62	7.68	0.06		1.15	
31.	2019	84	2267	7.68	7.72	0.04		1.73	
Total		**2267**							

Preferred Kinds of Publications

The study shows that Journal article with 1885papers (83.1%) followed by a Conference Paper with 286 papers (12.6%) is the main source of CAB Direct Online database coated publications for onion research. Third place Book Chapter with 77(3.39%), Bulletin article with 21 (0.9%)in fourth place are different. Table -2 furnishes the maximum 4 publication varieties.

Table 2: Top 5 Kinds of Publications

S. No.	Kinds of Document	No. of Papers	Percentage
1.	Journal article	1885	83.1
2.	Conference Paper	286	12.6
3.	Book Chapter	77	3.39
4.	Bulletin article	21	0.9

Most Popular Journals

The most popular among scientists interested in onion research were the Asian Journal of Horticulture with 62 papers (2.73%) followed by Sodininkysteir Darzininkyste with 44 papers (1.93%). The study revealed that 39 papers (1.71%) were published in the International Journal of Plant protection, Environment and Ecologyhasreleased43 papers ((1.89%) from the top five most influential onion research journals, three journals Viz., Vegetable Crops Research Bulletin 44 (1.93%). Table-3 lists the top 10 most popular journals, with the reported number of papers.

Table 3: Popular Journals

S. No.	Journal Name	No. of Papers	Percentage
1.	Asian Journal of Horticulture	62	2.73
2.	Sodininkysteir Darzininkyste	44	1.93
3.	Vegetable Crops Research Bulletin	44	1.93
4.	Environment and Ecology	43	1.89
5.	International Journal of Plant protection	39	1.71
6.	Plant Archives	35	1.54
7.	Journal of Plant Pathology	31	1.36
8.	Journal of Crop and Weed	28	1.23
9.	Madras Agricultural Journal	28	1.23
10.	International Journal of Tropical Agriculture	25	1.10

Prolific / Ranking Authors

The study reveals that Kumar, S is the most prolific / Ranked onion analyst authors who recorded23 papers (1.01%) followed by 19 papers (0.83%) from Kim Cheolwoo and Kim, C.N. It is observed that the author of the world rankings contributed a paper level of 5 to 23 viz., Lee EulTai, and Lee, E.Twith 18 papers(0.79%); Table – 4 lists the top10 prolific/ranked authors in the onion research.

Table 4: Top 10 Prolific / Ranking Authors

S. No.	Name of Author	No. of Papers	Percentage
1.	Kumar, S	23	1.01
2.	Kim Cheolwoo	19	0.83
3.	Kim, C.N	19	0.83
4.	Lee EulTai	18	0.79
5.	Lee, E.T	18	0.79
6.	Choi InHu	14	0.61
7.	Choi, I.H	14	0.61
8.	Jang Young Seok	12	0.52
9.	Jang, Y.S	12	0.52
10.	Neuhoff, D	12	0.52

Rank-Wise Countries Distribution of Publications

The study shows that India is the top country in onion seed research with 535 papers contributing nearly (23.5%) of the global onion research production followed by Romania with 80 papers (3.52%),Pakistan ranks third with 74 papers (3.26%), South Africa ranks fourth with 57 (2.51%) and Brazil ranks with56 papers (2.46%). The top 10 countries are in table-5, based on a variety of publications.

Table 5: Rank-Wise Countries

S. No.	Location	No of Articles	Cumulative Publications	Cumulative Percentage of Articles(%)
1.	India	535 (23.5)	535	23.5
2.	Romania	80 (3.52)	615	27.02
3.	Pakistan	74 (3.26)	689	30.28
4.	South Africa	57 (2.51)	746	32.79
5.	Brazil	56 (2.46)	802	35.25
6.	Poland	53 (2.33)	855	37.58
7.	Iran	46 (2.02)	901	39.6
8.	Egypt	38 (1.67)	939	41.27
9.	Lithuania	35 (1.54)	974	42.81
10.	Bangladesh	31 (1.36)	1005	44.17

Predominant Languages

It is observed that English, with 1886 papers (83.12%) followed by Spanish with 84 (3.70) and Portuguese with 61 (2.68%) is the most common language used by onion researchers. Table -6 furnishes prevailing top 10languages.

Table 6: Types of Language

S. No.	Language	No. of Papers	Percentage
1.	English	1886	83.12
2.	Spanish	84	3.70
3.	Portuguese	61	2.68
4.	Chinese	27	1.18
5.	Korean	32	1.41
6.	Lithuanian	28	1.23
7.	Turkish	27	1.18
8.	Persian	21	0.92
9.	French	16	0.70
10.	Croatian	15	0.66

CONCLUSIONS

Based on the onion analysis from the CAB Direct Online database, the scientometric analysis shows that India is the leading source of scientific research, with 535 publications producing around (23.5%) of the total output from the 10 countries. The other very interesting aspect is that Kumar, S is the most prolific / Ranked onion analytics authors who recorded23 papers (1.01%) followed by 19 papers (0.83%) from Kim Cheolwoo andKim, C.N. It is observed that with 18 papers(0.79%)the author of the world rankings contributed a paper level of 5 to 23 viz., Lee EulTai, and Lee, E.T The study reported that the Asian Journal of Horticulture was the most popular among scientists interested in onion research with 62 papers (2.73%) followed by Sodininkyste ir Darzininkystewith 44 papers (1.93%). The study revealed that 39 papers (1.71%) and the International Journal of Plant Health, protection, Environment and Ecology have published 43 papers ((1.89%) from the top five most important onion research journals, three journals Viz., Vegetable Crops Research Bulletin 44 (1.93%).

REFERENCES

1. *Fallah, Mohammd et.al. (2019). Scientometric Study of Scientific Publications in Seismology based onWeb of Science. Rahyaft,. 28(72), 61-76.*
2. *Yaminfirooz, M et.al. (2014). Scientific production of sports science in Iran: A Scientometric analysis. Acta Informatica Meica, 22(3), 195-198.*
3. *Rajendran, L. (2019). Banana Study Publications: A Scientometric Evaluation on Cab Direct for the Period 1978-2018. Asian Journal of Information Science & Technology (AJIST), 9(3),44-47.*
4. *Sagar, A. et.al. (2010). Scientometric mapping of Tsunami publications: A citation based study. Malaysian Journal of Library and Information Science, 15(1), 23-40.*
5. *Rajendran, L. (2020). Coronavirus on veterinary research: a scientometric profile based on CAB direct online. International Journal of Science & Healthcare Research, 5(1), 159-164.*

6. *Priya A. Suradkar. and Khaparde. Vaishali. S. (2012). Authorship Pattern: Scientometric Study on Citation in Journal Of documentation. Electronic International Interdisciplinary Research Journal, 1(3), 54-64.*
7. *Krishnan, V and Raja, S. (2015). Research Productivity of Journal of Optics: a Scientometric Study. Journal of Advances in Library and Information Science, 4(2), 177-181.*
8. *Rajendran, L. (2015). Elephant Research Publications: A Scientometric Analysis on Cab Direct for the Period (1959-2013). SRELS Journal of Information Management, 52(6), 433-439.*
9. *Gourikeremath Gouri, N et.al. (2016). Publication Trends and Citation Impact of Microbiology Research in India: a Scientometric Study. Research Journal of Library Sciences, 4(8), 1-10.*
10. *Velmurugan, C and Radhakrishnan, N. (2016). Malaysian Journal of Library and Information Science: a Scientometric Profile. Journal of Scientometric Research, 5(1), 62-70.*